

CENTRAL SHOSHONE COUNTY WATER DISTRICT SOURCE WATER ASSESSMENT REPORT

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State of Idaho Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the watershed characteristics.

This report, *Source Water Assessment for Central Shoshone County Water District* describes the public drinking water system, the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Central Shoshone County Water District drinking water system consists of surface water intakes in Big Creek, McFarren Creek, Shields Creek, Milo Creek and a -soon to be acquired well at Enaville. The Enaville well was the sole source from January through September 1999, but because of the corrosivity of the water, it was taken off line, and the district reverted to the Big Creek and McFarren Creek sources. Results of a particulate analysis conducted in 1999 on the Enaville well water show that the Coeur d'Alene River directly influences it. During high water, the well, which is located about 30 feet from the riverbank, is surrounded by floodwaters, putting it at risk for microbial contamination. Because of its ground water under direct influence of surface water (GWUDI) status the well, analyzed as a surface source, is also highly susceptible to contamination from a gasoline pipeline that crosses the North Fork of the Coeur d'Alene River and its tributaries 56 places upstream from the well; and to contamination from mining activity in the South Fork drainage. Turbidity and microbial contamination are the principal water quality threats to the surface water sources in the Central Shoshone County Water District.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For Central Shoshone County Water District source water protection activities should focus on bringing the Enaville well into compliance with state regulations and preventing degradation of the Coeur d'Alene River from high-density residential use and unregulated camping on the banks of the river. Operators of the Yellowstone pipeline, which carries gasoline across the river above the well, need to be informed that a public water source is located downstream, and should be testing the pipeline regularly for leaks. Protection efforts in the small surface water drainages should center on preventing sediment flow into the creeks from roads, logging, mining or recreational use of the watersheds. To be successful, source water protection efforts require the cooperation of federal, state, and local agencies plus industry and private land owners in the source water management area. Due to the fairly short time associated with the movement of surface waters, source water protection activities should be aimed at both short-term and long-term management strategies to counter any future contamination threats.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact your regional IDEQ office or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR CENTRAL SHOSHONE COUNTY WATER DISTRICT

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted.

It is important to review this information to understand what the ranking of these sources means. Maps showing the delineated source water assessment areas, maps showing the entire watershed contributing to the delineated area and the inventory of significant potential sources of contamination identified within the delineated areas are included. The worksheets used to develop the assessments also are attached.

Background

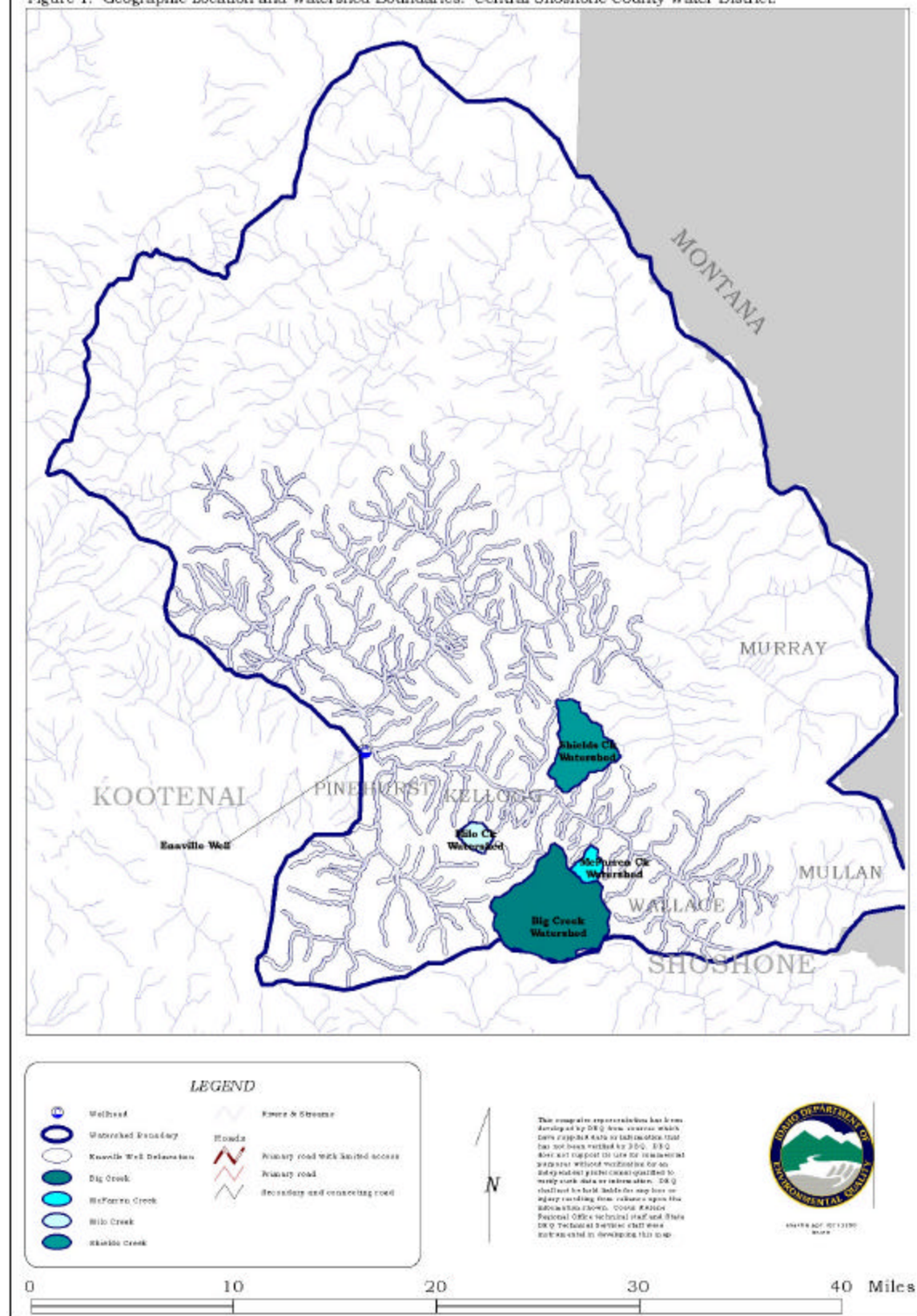
Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the intakes and watershed characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, time and resources to accomplish the assessments are limited. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for these sources. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply. The Idaho Department of Environmental Quality (IDEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. IDEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Figure 1. Geographic Location and Watershed Boundaries. Central Shoshone County Water District.



Section 2. Conducting the Assessment

General Description of the Source Water Quality

Central Shoshone County Water District serves approximately 2300 people, located in Osburn, Kellogg, Wardner, Smelterville and the outlying communities of Elk Creek, Big Creek, Elizabeth Park, Sunnyside Subdivision, Page and Montgomery Gulch in Shoshone County, Idaho (Figure 1). Kingston Water District, which serves 800 customers, is also planning to become part of Central Shoshone County Water District. The public drinking water system for Central Shoshone County Water District is comprised of surface water intakes in Big Creek and McFarren Creek backup surface intakes in Milo and Shields Creeks and a well at Enaville.

The primary water quality issue currently facing Central Shoshone County Water District is that of the corrosive nature of the water in the Enaville well and the well's designation as a ground water source under direct influence of surface water. The main water quality problem affecting the four surface water intakes is microbial contamination and problems associated with turbidity. Inorganic chemicals, volatile organic chemicals and synthetic organic chemicals have never been detected in the sources. Radionuclides have been detected in water from the well and surface sources, but at level below the Maximum Contaminant Level (MCL), since testing began in 1984.

Radiological test results are not available on Shields Creek.

Defining the Zones of Contribution--Delineation

To protect surface water systems from potential contaminants, the EPA required that the entire drainage basin be delineated upstream from the intake to the hydrologic boundary of the drainage basin (U.S. EPA, 1997b). The EPA recognized that an intake on a large water body could have an extensive drainage basin. Therefore, the EPA recommended that large drainage basins be segmented into smaller areas for the purpose of implementing a cost-effective potential contaminant inventory and susceptibility analysis. The delineation process established the physical area around an intake that became the focal point of the assessment. Because the watersheds for Big Creek, McFarren Creek, Milo Creek and Shields Creek are relatively small, the delineations were not subdivided (Figure 3 - Figure 6). The delineations extend to the watershed boundaries as they appear on 7.5-minute USGS topographic maps.

Computer modeling was employed to trace ground water-surface water interactions for the Enaville well since it is situated at the confluence of the North and South Forks of the Coeur d'Alene River. Results showed flow paths to the well emanating from both forks of the river (Figure 2b). The model was run using water surface elevations interpolated from contours on a USGS 7.5 minute topographic map, information from the well log, an estimated aquifer transmissivity of 14000 feet per day and a pumping rate of 5000 gpm.

Because the Enaville well is directly influenced by the Coeur d'Alene River, the boundary of the zone of contribution was mapped as a 500-foot buffer zone extending along the river from the well upstream 25 miles or to the 4-hour streamflow time-of-travel boundary, whichever is greater. This 4-hour streamflow is calculated from the 10-year flood event. The 500-foot buffer zone also extends up tributaries to the remainder of the 25-mile boundary, or the 4-hour streamflow time-of-travel boundary (Figures 2 and 2a). The data used by IDEQ in determining the source water assessment delineation are available upon request.



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Figure 3. McFarren Creek Delineation Map and Contaminant Sources

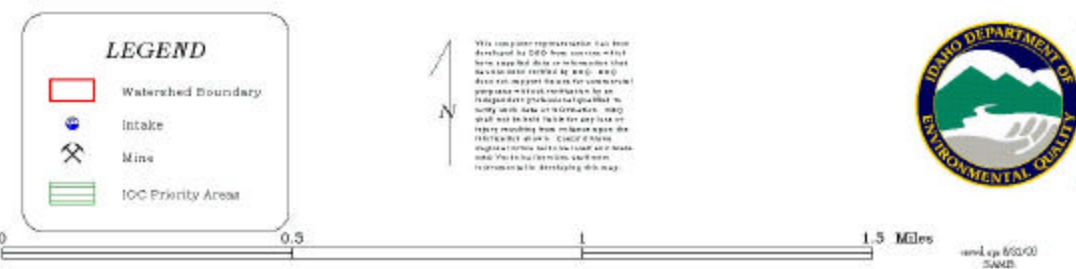
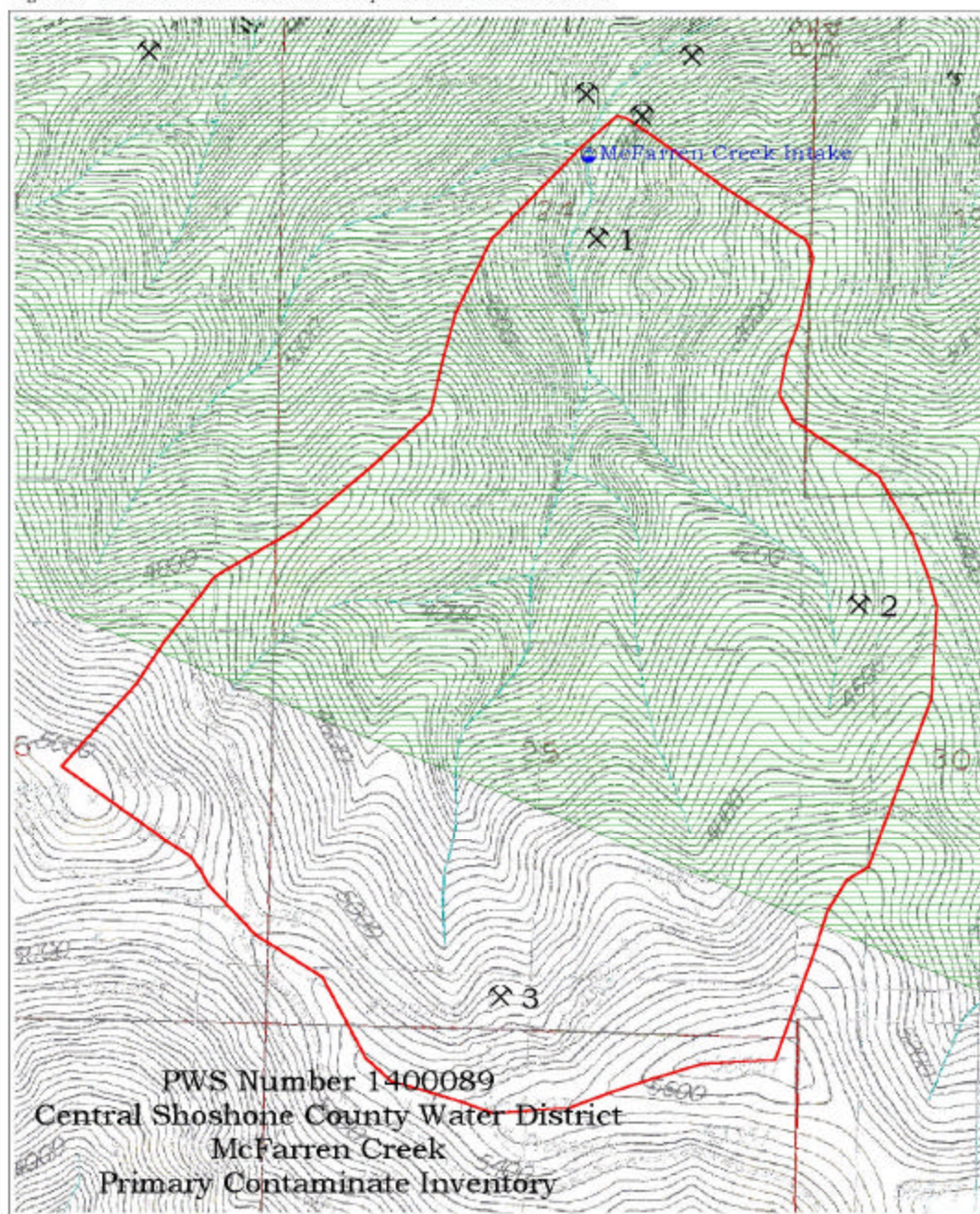


Figure 4. Big Creek Delineation Map and Contaminant Sources

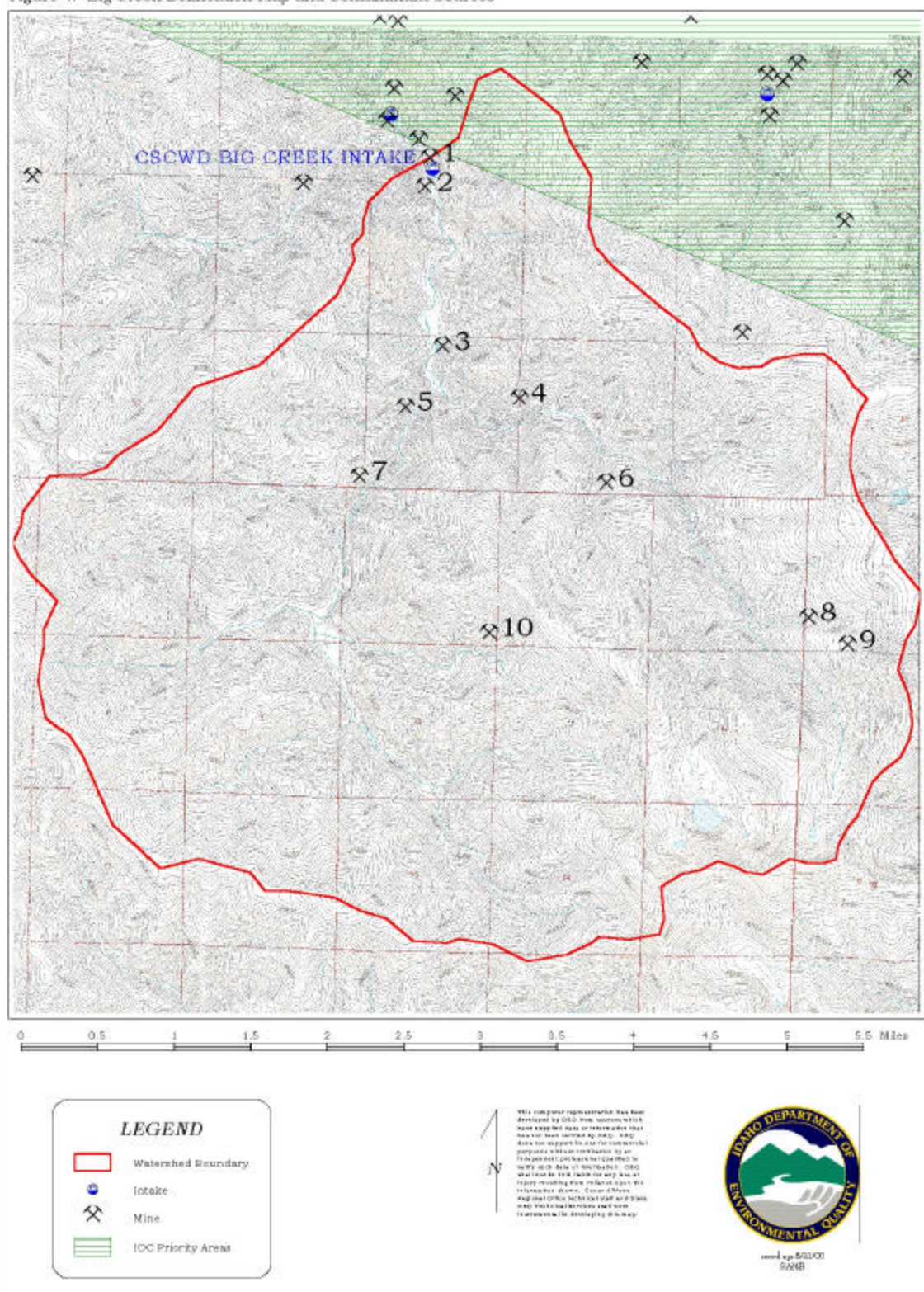


Figure 5. Shields Creek Delineation Map and Contaminant Sources

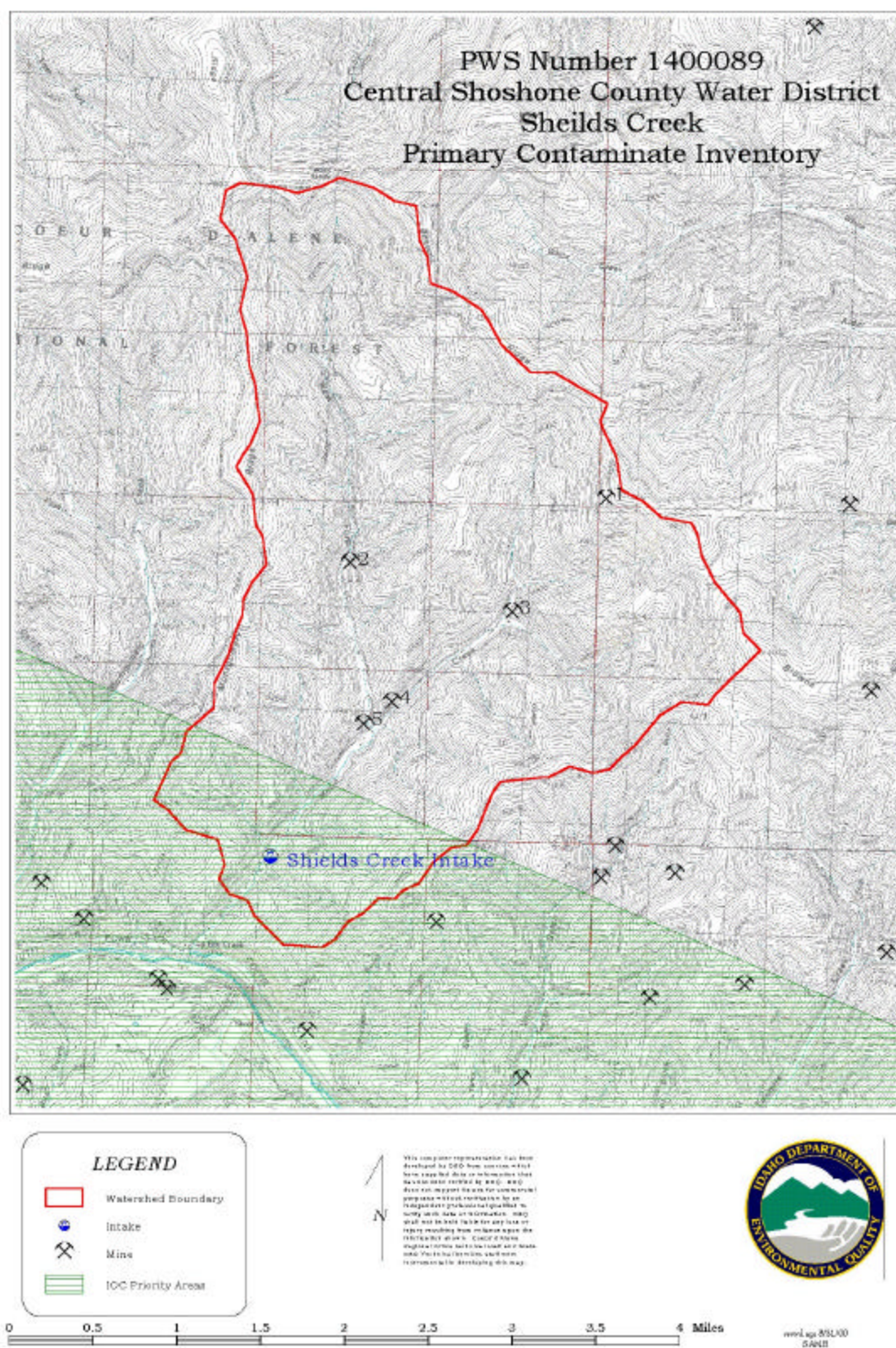
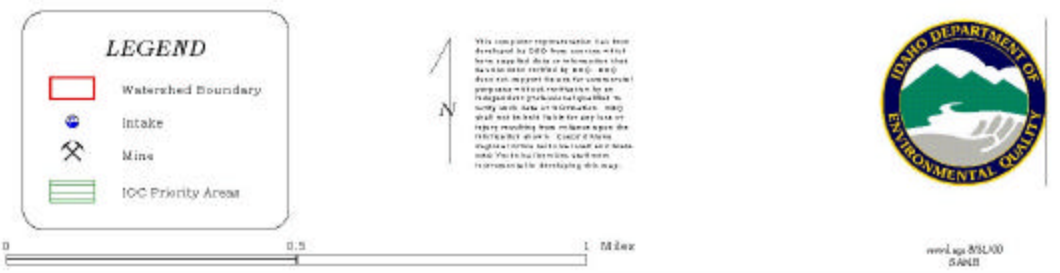
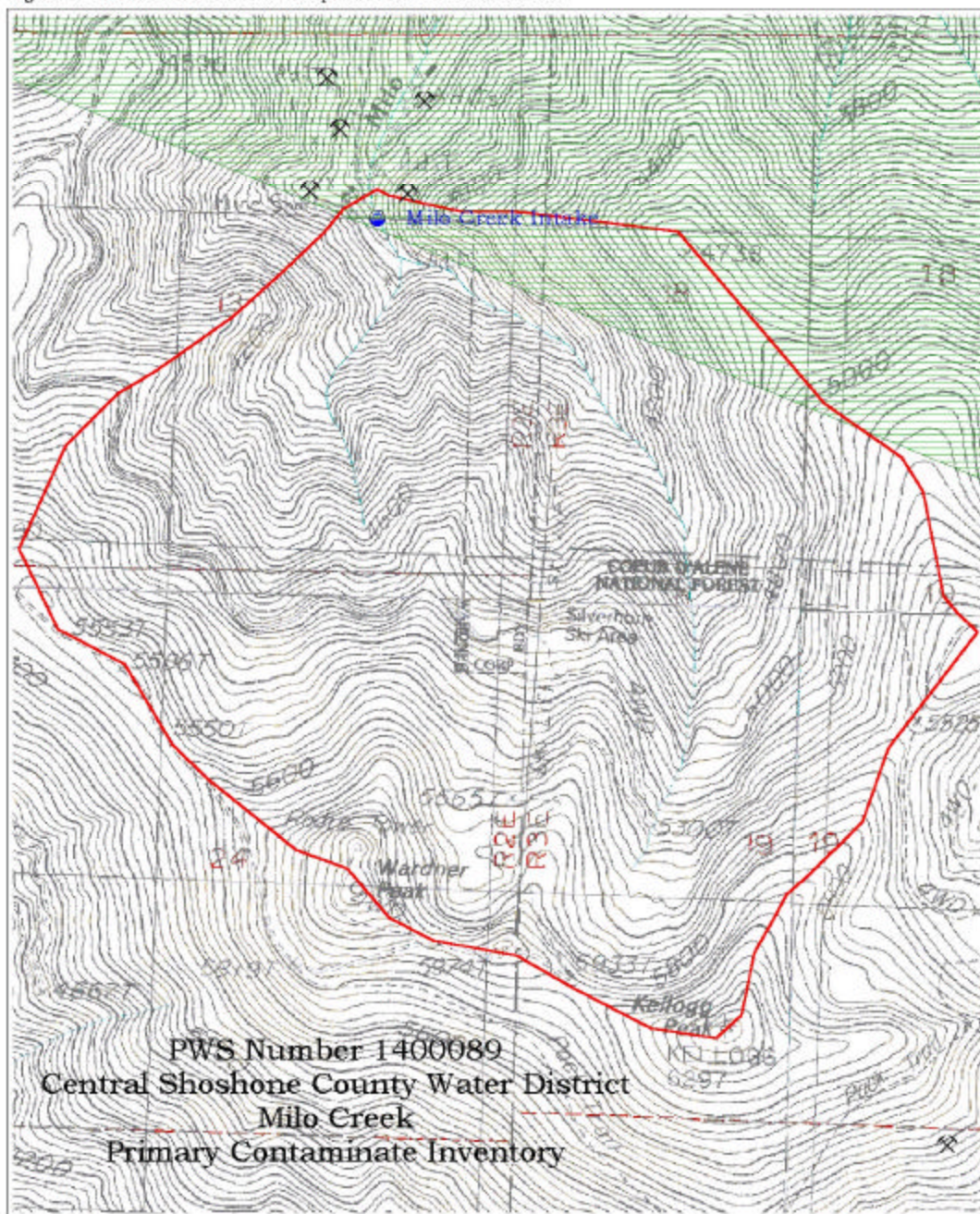


Figure 6. Milo Creek Delineation Map and Contaminant Sources



Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of surface water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by IDEQ and from available databases.

The dominant land use in the northern part of Coeur d'Alene River watershed, is undeveloped forest. Most of the land in the watershed is publicly owned and is administered by the U.S. Forest Service, the Bureau of Land Management or the State of Idaho. The area has been extensively logged. A gasoline pipeline crosses the river and its tributaries 56 times above Enaville. The majority of the privately owned land with clusters of year-round and summer homes abuts Prichard and Beaver Creeks and the river from Prichard to Enaville. The watershed is a popular recreation area.

Land use in the South Fork drainage includes mining, small towns, businesses, and light manufacturing. Most of the population of Shoshone County lives in small communities strung along the banks of the South Fork from Mullan to Cataldo.

The surface water intakes on the four creeks used as water sources and backups are situated high in steep, narrow canyons. The land is mostly undeveloped forest and inactive mine sites owned by a mixture of private interests and the public. The Big Creek drainage and Elsie Lake get heavy recreational use from hikers and mountain bikers.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply intake.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted. The first phase involved identifying and documenting potential contaminant sources within the Central Shoshone County Water District Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by IDEQ. Mac Pooler of Central Shoshone County Water District reviewed the maps.

A total of 203 potential contaminant sites are located within the delineated source water area for the Enaville well. A gasoline pipeline crosses the North Fork of the Coeur d'Alene River and its tributaries 56 places upstream from the well. The majority of the potential contaminant sites DEQ identified are located in the South Fork drainage and are related to mining.

10 mine sites are located in the Big Creek drainage; 3 in the McFarren drainage; 5 in the Shields Creek watershed and none in the Milo Creek delineation. No other types of potential contaminant sources were found in the IDEQ database search. Information about active logging sites, road building and the location and density of septic systems for houses and businesses was not available and is not shown on Figures 2-6. Table 1 lists the potential contaminants of concern and information source.

Table 1. Central Shoshone County Water District Potential Contaminant Inventory

Map ID Enaville Well	Source Description	Potential Contaminants	Source of Information
1	Petroleum Storage Tank	SOC VOC	LUST Database
2	Gas Station	SOC VOC	LUST Database
3	Trucking Company	SOC VOC	LUST Database
4	city garage	SOC VOC	LUST Database
5	GARAGE	SOC VOC	LUST Database
6	MINING CO	SOC VOC	LUST Database
7	TRANSPORTATION DEPT	SOC VOC	LUST Database
8	Mill Site	SOC VOC	LUST Database
9	Gas Station	SOC VOC	LUST Database
10	Gas Station	SOC VOC	LUST Database
11	Petroleum Storage Tank	SOC VOC	LUST Database
12	Petroleum Storage Tank	SOC VOC	LUST Database
13	city shop	SOC VOC	LUST Database
14	TRUCK STOP	SOC VOC	LUST Database
15	Petroleum Storage Tank	SOC VOC	UST Database
16	Trucking Company	SOC VOC	UST Database
17	GARAGE	SOC VOC	UST Database
18	Gas Station	SOC VOC	UST Database
19	GARAGE	SOC VOC	UST Database
20	REFINERY	SOC VOC	UST Database
21	Utility Company	SOC VOC	UST Database
22	IDAHO TRANSPORTATION DEPT	SOC VOC	UST Database
23	MINING CO	SOC VOC	UST Database
24	Gas Station	SOC VOC	UST Database
25	closed car dealership	SOC VOC	UST Database
26	Gas Station	SOC VOC	UST Database
27	Gas Station	SOC VOC	UST Database
28	Gas Station	SOC VOC	UST Database
29	closed car dealership	SOC VOC	UST Database
30	closed gas station	SOC VOC	UST Database
31	Gas Station	SOC VOC	UST Database
32	Lumber store	SOC VOC	UST Database
33	Gas Station	SOC VOC	UST Database
34	city shop	SOC VOC	UST Database
35	Petroleum Storage Tank	SOC VOC	UST Database
36	city shop	SOC VOC	UST Database
37	General Contractors	SOC VOC	Business Mailing List

Table 1. Central Shoshone County Water District Potential Contaminant Inventory, Cont.

Map ID Enaville Well	Source Description	Potential Contaminants	Source of Information
38	Automobile Repairing & Service	SOC VOC	Business Mailing List
39	Excavating Contractors	SOC VOC	Business Mailing List
40	Automobile Body-Repairing & Painting	SOC VOC	Business Mailing List
41	Excavating Contractors	SOC VOC SEDIMENT	Business Mailing List
42	Cleaners	VOC	Business Mailing List
43	General Contractors	SOC VOC	Business Mailing List
44	Automobile Repairing & Service	SOC VOC	Business Mailing List
45	Utility Company	SOC VOC	Business Mailing List
46	Service Stations-Gasoline & Oil	SOC VOC	Business Mailing List
47	Moving Supplies & Equipment Company	SOC VOC	Business Mailing List
48	Hydraulic Equipment & Supplies	SOC VOC	Business Mailing List
49	Automobile Repairing & Service	SOC VOC	Business Mailing List
50	Utility Company	MICROBIAL	Business Mailing List
51	commercial Artist	SOC VOC	Business Mailing List
52	General Contractors	SOC VOC	Business Mailing List
53	photographer	IOC	Business Mailing List
54	Newspaper	SOC VOC	Business Mailing List
55	photographer	IOC	Business Mailing List
56	mining equipment company	SOC VOC	Business Mailing List
57	Machine Tools Manufacturers	SOC VOC	Business Mailing List
58	Snowmobiles	SOC VOC	Business Mailing List
59	public works	SEDIMENT	Business Mailing List
60	SEWER DISTRICT	MICROBIAL	Business Mailing List
61	Automobile Parts & Supplies-Wholes	SOC VOC	Business Mailing List
62	fire Department	SOC VOC	Business Mailing List
63	Toys-Manufacturers	SOC VOC	Business Mailing List
64	Hardware-Wholesale	SOC VOC	Business Mailing List
65	MINE discharge	IOC	NPDES Database
66	H2O TREATMENT discharge	MICROBIAL	NPDES Database
67	WATER FILTER discharge	PARTICULATE	NPDES Database
68	H2O TREATMENT discharge	MICROBIAL	NPDES Database
69	WATER FILTER discharge	PARTICULATE	NPDES Database
70	MINE discharge	IOC	NPDES Database
71	Industrial site	No additional data	Toxic Release Inventory
72	MINE discharge	IOC	CERCLA Database
73	Trucking Company	IOC SOC VOC	CERCLA Database
74	Millsite--Tailings and Rock Dump	IOC, SEDIMENT	CERCLA Database
75	TAILINGS PILE	IOC	CERCLA Database
76	MILLSITE & MINE	IOC	CERCLA Database
77	MILLSITE & TAILINGS	IOC	CERCLA Database

Map ID Enaville Well	Source Description	Potential Contaminants	Source of Information
78	MINE	lead, IOC	CERCLA Database
79	Closed Auto Dealership	SOC VOC	RCRIS Database
80	CLEANERS	VOC	RCRIS Database
81	WALLACE PRINTING GO	SOC VOC	RCRIS Database
82	Utility Company	SOC VOC	RCRIS Database
83	Mine	lead, IOC	Mine Database
84	PROSPECT	lead, IOC	Mine Database
85	mine	COPPER, IOC	Mine Database
86	mine	COPPER, IOC	Mine Database
87	mine	COPPER, IOC	Mine Database
88	mine	Silver, IOC	Mine Database
89	mine	lead, IOC	Mine Database
90	mine	lead, IOC	Mine Database
91	mine	lead, IOC	Mine Database
92	borrow pit	SEDIMENT	Mine Database
93	mine	lead, IOC	Mine Database
94	mine	lead, IOC	Mine Database
95	SMEILTER & REFINERY Site	lead, IOC	Mine Database
96	mine	lead, IOC	Mine Database
97	MINE	lead, IOC	Mine Database
98	MINE	lead, IOC	Mine Database
99	MINE	lead, IOC	Mine Database
100	ELECTROLYTIC REFINRY	Zinc, IOC	Mine Database
101	MINE	lead, IOC	Mine Database
102	MINE	lead, IOC	Mine Database
103	MINE	lead, IOC	Mine Database
104	MINE	lead, IOC	Mine Database
105	MINE	lead, IOC	Mine Database
106	MINE	lead, IOC	Mine Database
107	MINE	lead, IOC	Mine Database
108	GRAVEL PIT	SEDIMENT	Mine Database
109	MINE	lead, IOC	Mine Database
110	MINE	lead, IOC	Mine Database
111	MINE	lead, IOC	Mine Database
112	MINE	COPPER, IOC	Mine Database
113	MINE	lead, IOC	Mine Database
114	MINE	lead, IOC	Mine Database
115	MINE	lead, IOC	Mine Database
116	MINE	lead, IOC	Mine Database
117	MINE	lead, IOC	Mine Database
118	MINE	lead, IOC	Mine Database
119	MINE	lead, IOC	Mine Database
120	MINE	lead, IOC	Mine Database
121	MINE	Gold, IOC	Mine Database
122	MINE	lead, IOC	Mine Database
123	MINE	lead, IOC	Mine Database
124	MINE	lead, IOC	Mine Database
125	MINE	lead, IOC	Mine Database
126	MINE	lead, IOC	Mine Database

Map ID Enaville Well	Source Description	Potential Contaminants	Source of Information
127	MINE	lead, IOC	Mine Database
128	MINE	Zinc, IOC	Mine Database
129	MINE	lead, IOC	Mine Database
130	MINE	lead, IOC	Mine Database
131	ANTIMONY REFINERY	Antimony, IOC	Mine Database
132	MINE	lead, IOC	Mine Database
133	MINE	lead, IOC	Mine Database
134	MINE	lead, IOC	Mine Database
135	MINE	Silver, IOC	Mine Database
136	MINE	lead, IOC	Mine Database
137	GRAVEL PIT	SEDIMENT	Mine Database
138	MINE	lead, IOC	mine
139	MINE	lead, IOC	Mine Database
140	MINE	lead, IOC	Mine Database
141	MINE	lead, IOC	Mine Database
142	MINE	lead, IOC	Mine Database
143	MINE	lead, IOC	Mine Database
144	MINE	Silver, IOC	Mine Database
145	MINE	Silver, IOC	Mine Database
146	MINE	Silver, IOC	Mine Database
147	MINE	lead, IOC	Mine Database
148	MINE	lead, IOC	Mine Database
149	MINE	lead, IOC	Mine Database
150	MINE	lead, IOC	Mine Database
151	MINE	lead, IOC	Mine Database
152	MINE	lead, IOC	Mine Database
153	MINE	Silver, IOC	Mine Database
154	MINE	SEDIMENT	Mine Database
155	MINE	lead, IOC	Mine Database
156	MINE	lead, IOC	Mine Database
157	I-90 PIT	SEDIMENT	Mine Database
158	MINE	lead, IOC	Mine Database
159	MINE	lead, IOC	Mine Database
160	MINE	lead, IOC	Mine Database
161	MINE	Silver, IOC	Mine Database
162	MINE	lead, IOC	Mine Database
163	MINE	lead, IOC	Mine Database
164	MINE	lead, IOC	Mine Database
165	MINE	Silver, IOC	Mine Database
166	MINE	lead, IOC	Mine Database
167	MINE	lead, IOC	Mine Database
168	MINE	lead, IOC	Mine Database
169	MINE	lead, IOC	Mine Database
170	MINE	lead, IOC	Mine Database
171	MINE	lead, IOC	Mine Database
172	MINE	lead, IOC	Mine Database
173	MINE	Silver, IOC	Mine Database
174	MINE	lead, IOC	Mine Database
175	MINE	lead, IOC	Mine Database

Table 1. Central Shoshone County Water District Potential Contaminant Inventory, Cont.

Map ID Enaville Well	Source Description	Potential Contaminants	Source of Information
176	MINE	lead, IOC	Mine Database
177	MINE	Silver, IOC	Mine Database
178	MINE	lead, IOC	Mine Database
179	MINE	lead, IOC	Mine Database
180	MINE	lead, IOC	Mine Database
181	MINE	lead, IOC	Mine Database
182	MINE	Zinc, IOC	Mine Database
183	MINE	lead, IOC	Mine Database
184	QUARRY	SEDIMENT	Mine Database
185	MINE	lead, IOC	Mine Database
186	MINE	Silver, IOC	Mine Database
187	MINE	lead, IOC	Mine Database
188	MINE	lead, IOC	Mine Database
189	MINE	lead, IOC	Mine Database
190	MINE	Silver, IOC	Mine Database
191	MINE	Gold, IOC	Mine Database
192	MINE	lead, IOC	Mine Database
193	MINE	Manganese, IOC	Mine Database
194	MINE	lead, IOC	Mine Database
195	WATER DISTRICT	IOC	SARA Database
196	TRANSPORTATION DEPARTMENT	SOC, VOC	SARA Database
197	WATER treatment facility	IOC	SARA Database
198	GROUP 1 SITE	IOC SOC VOC	Group1 Database
199	TRANSFER STATION	SOC VOC microbial	landfill
200	surface water	microbial	Enhanced Inventory
201	public restroom facilities	microbial	Enhanced Inventory
202	White Water System	microbial	Enhanced Inventory
203	Gasoline Pipeline	SOC VOC	Enhanced Inventory
Map ID Big Creek	Source Description	Potential Contaminants	Source of Information
1	MINE	Lead, IOC	Mine Database
2	MINE	Lead, IOC	Mine Database
3	MINE	Lead, IOC	Mine Database
4	PROSPECT	Lead, IOC	Mine Database
5	PIT	Stone	Mine Database
6	MINE	Gold	Mine Database
7	PROSPECT	Lead, IOC	Mine Database
8	MINE	Silver, IOC	Mine Database
9	PROSPECT	Silver, IOC	Mine Database
10	MINE PROPERTY	Lead, IOC	Mine Database
Map ID McFarren Creek	Source Description	Potential Contaminants	Source of Information
1	MINE	Lead, IOC	Mine Database
2	PROSPECT	Lead, IOC	Mine Database
3	MINE	Silver, IOC	Mine Database

Table 1. Central Shoshone County Water District Potential Contaminant Inventory, Cont.

Map ID Shields Creek	Source Description	Potential Contaminants	Source of Information
1	MINE	Silver, IOC	Mine Database
2	MINE	Lead, IOC	Mine Database
3	MINE	Lead, IOC	Mine Database
4	MINE	Lead, IOC	Mine Database
5	MINE	Lead, IOC	Mine Database

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

Significant potential sources of contamination were ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity and construction of the intake, land use characteristic, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants.

The relative ranking that is derived for each intake is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Intake Construction

The construction of the Central Shoshone County Water District Enaville Well and surface water intakes directly affects their susceptibility to contamination. The Enaville well, reaches a depth of 52 feet in sand and gravel soil with narrow bands of clay. The water table is 8 feet below the surface of the ground. The well is located near the confluence of the main stem of the Coeur d'Alene River and the South Fork and is surrounded by water during flooding. Analyzed both as a groundwater source and as a surface source because of the 1999 GWUDI designation, the well is in the high range for susceptibility to contamination because it is in the flood plain, the water table is high, and the soils are permeable. The well casing is 6 feet in diameter with clay and bentonite seal around the casing extending 40 feet below ground level.

The intakes in McFarren and Shields Creeks consist of gravel fill behind dams with screens laid on the surface of the gravel. The Big Creek intake is a dam with infiltration galleries buried in the gravel upstream. These three intakes got a low susceptibility to contamination rating based on construction details. Milo Creek water is collected through a screened inlet behind a dam. The lack of an infiltration gallery put it in the moderately susceptible to contamination category based on inlet construction.

Potential Contaminant Source and Land Use

All four of the surface intakes ranked in the low susceptibility category for contamination from SOC's and VOC's. The McFarren and Big Creek intakes are ranked high for susceptibility to IOC contamination because of the proximity mines to the intakes. Shields Creek was ranked moderately susceptible to IOC contamination because of the number of mines in the watershed.

Susceptibility to microbial contamination, which for surface sources is generally related to storm water runoff and agricultural grazing impacts, was low for the surface water intakes. The Enaville well was automatically ranked highly susceptible to microbial contamination because of its GWUDI status. The well was automatically ranked highly susceptible to SOC and VOC contamination because of the pipeline crossing river upstream. Construction rankings and potential contaminant/land use rankings are summarized in Table 2 along with the final susceptibility ranking for each source.

Table 2. Summary of Central Shoshone County Water District Susceptibility Evaluation

Intake	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Enaville Well	M	H*	H*	H*	H	M	H*	H*	H*
Big Creek	H*	L	L	L	L	H*	L	L	L
McFarren Creek	H*	L	L	L	L	H*	L	L	L
Shields Creek	M	L	L	L	L	M	L	L	L
Milo Creek	L	L	L	L	M	L	L	L	L

H = High Susceptibility, M = Moderate Susceptibility, Low Susceptibility

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

H* - Indicates source automatically scored as highly susceptible due to presence of either a VOC, SOC or an IOC above the Maximum Contaminant Level in the finished drinking water, the presence of significant contaminant sources within 1000 feet of the intake or crossing a stream.

Susceptibility Summary

The Enaville well was the sole source from January through September 1999, but because of the corrosivity of the water, it was taken off line, and the district reverted to the Big Creek and McFarren Creek sources. Results of a particulate analysis conducted in 1999 on the Enaville well water show that it is directly influenced by the Coeur d'Alene River. During high water, the well is surrounded by floodwaters, putting it at high risk for microbial contamination. It is also at high risk for contamination in the event of leakage from a gasoline pipeline crossing the river above the well. Turbidity and microbial contamination are the principal water quality threat to surface water sources in the Central Shoshone County Water District. .

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For Central Shoshone County Water District source water protection activities should focus on bringing the Enaville well into compliance with state regulations and preventing degradation of the Coeur d'Alene River from high-density residential use and unregulated camping on the banks of the river. . Operators of the Yellowstone pipeline, which carries gasoline across the river above the well, need to be informed that a public water source is located downstream, and should be testing the pipeline regularly for leaks. Protection efforts in the small surface water drainages should center on preventing sediment flow into the creeks from roads, logging mining or recreational use of the watersheds. To be successful, source water protection efforts require the cooperation of federal, state, and local agencies plus industry and private land owners in the source water management area.

Protecting Drinking Water Sources in Idaho, a guide prepared by DEQ staff and available at the DEQ Regional Office in Coeur d'Alene, discusses how to develop and implement source water protection plans. The guide details specific examples of watershed protection measures including the regulatory tools available.

Assistance

Public water supplies and others may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Coeur d'Alene Regional IDEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: <http://www.deq.state.id.us>

References Cited

Idaho Department of Agriculture, 1998. Unpublished Data.

Idaho Division of Environmental Quality, 1994. Ground Water and Soils Reconnaissance of the Lower Payette Area, Payette County, Idaho. Ground Water Quality Technical Report No. 5. Idaho Division of Environmental Quality. December 1994.

EPA (U.S. Environmental Protection Agency), 1997, State Methods for Delineating Source Water Protection Areas for Surface Water Supplied Sources of Drinking Water, EPA 816-R-97-008, 40p.

U.S. Government Printing Office, 1995, Code of Federal Regulations, 40 CFR 112, Appendix C-III, Calculation of the Planning Distance

Idaho Department of Environmental Quality, 1999, *Protecting Drinking Water Sources in Idaho*.

United States Department of Agriculture, Forest Service, Lolo National Forest, September 2000. *Preliminary Final Environmental Impact Statement: Changes Proposed to Existing YPL Pipeline Between Thompson Falls and Kingston*.

Attachment A

Central Shoshone County Water District Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined from the addition of the Potential Contaminant Source/Land Use Score and Source Construction Score.

Final Susceptibility Scoring:

0 - 7 Low Susceptibility

8 - 15 Moderate Susceptibility

> 16 High Susceptibility

Ground Water Susceptibility

Public Water System Name : **CENTRAL SHOSHONE COUNTY WATER DIST** Source: **ENAVILLE WELL**
 Public Water System Number : **1400089**

1. System Construction		SCORE			
Drill Date	1/1/57				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	0			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	NO	1			
Total System Construction Score		5			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		Score	Score	Score	Score
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	YES	YES	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	1	1
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	YES	1	1	0	1
(Score = # Sources X 2) 8 Points Maximum		2	2	0	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	1	0	
4 Points Maximum		1	1	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		3	3	0	2
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0
Potential Contaminant / Land Use - ZONE III (10 YR. TOT)					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		4	4	1	3
4. Final Susceptibility Source Score		12	1	11	12
5. Final Well Ranking		Moderate	*High	*High	*High

Surface Water Susceptibility Report

Public Water System Name : CENTRAL SHOSHONE COUNTY WATER DIST

Source: BIG CREEK

Public Water System Number : 1400089

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1. System Construction		Score				
Intake structure properly constructed	YES	0				
Infiltration gallery						
or well under the direct influence of surface water	YES	0				
Total System Construction Score		0				
2. Potential Contaminant Source / Land Use		IOC Score	VOC Score	SOC Score	Microbial Score	
Predominant land use type (land use or cover)	UNDEVELOPED	0	0	0	0	
Farm chemical use high	NO	0	0	0		
Significant contaminant sources *		YES				
Sources of class II or III contaminants or microbials	NO	0	0	0	0	
Agricultural lands within 500 feet	NO					
		0	0	0	0	
Three or more contaminant sources	YES	1	1	1	1	
Sources of turbidity in the watershed	YES	1	1	1	1	
Total Potential Contaminant Source / Land Use Score		1	1	1	1	
3. Final Susceptibility Source Score		1	1	1	1	
4. Final Source Ranking		High*	Low	Low	Low	

Automatically scored highly susceptible due to presence of lead mine within 500 feet of the creek and 1000 feet of the intake.

Surface Water Susceptibility

Public Water System Name : CENTRAL SHOSHONE COUNTY WATER DIST

Source: MCFARREN CREEK

Public Water System Number : 1400089

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1. System Construction		Score			
Intake structure properly constructed	YES	0			
Infiltration gallery					
or well under the direct influence of surface water	YES	2			
Total System Construction Score		0			
2. Potential Contaminant Source / Land Use		IOC Score	VOC Score	SOC Score	Microbial Score
Predominant land use type (land use or cover)	BASALT FLOW, UNDEVELOPED, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
Significant contaminant sources *	YES	ioc			
Sources of class II or III contaminants or microbials		0	0	0	0
Agricultural lands within 500 feet	NO				
		0	0	0	0
Three or more contaminant sources	NO	0	0	0	0
Sources of turbidity in the watershed	YES	1	1	1	1
Total Potential Contaminant Source / Land Use Score		1	1	1	1
3. Final Susceptibility Source Score		1	1	1	1
4. Final Source Ranking		*High	Low	Low	Low

Automatically ranked highly susceptible due to presence of contaminant source within 500 feet of stream and 1000 feet of intake

Surface Water Susceptibility

Public Water System Name : **CENTRAL SHOSHONE COUNTY WATER DIST**

Source: **MILO CREEK**

Public Water System Number : **1400089**

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1. System Construction

Score

Intake structure properly constructed	YES	0
Infiltration gallery or well under the direct influence of surface water	NO	0

Total System Construction Score

2

2. Potential Contaminant Source / Land Use

IOC
Score

VOC
Score

SOC
Score

Microbial
Score

Predominant land use type (land use or cover)		2	2	2	2
Farm chemical use high	NO	0	0	0	
Significant contaminant sources *	NO				
Sources of class II or III contaminants or microbials		0	0	0	0
Agricultural lands within 500 feet	NO	0	0	0	0
Three or more contaminant sources	NO	0	0	0	0
Sources of turbidity in the watershed	NO	0	0	0	0

Total Potential Contaminant Source / Land Use Score

0 **0** **0** **0**

3. Final Susceptibility Source Score

2 **2** **2** **2**

4. Final Source Ranking

Low Low Low Low

* Special consideration due to significant contaminant: The source water has no special susceptibility

09/25/01

Surface Water Susceptibility

Public Water System Name : **CENTRAL SHOSHONE COUNTY WATER DIST**

Source: **SHIELDS CREEK**

Public Water System Number : **1400089**

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1. System Construction		Score			
Intake structure properly constructed	YES	0			
Infiltration gallery					
or well under the direct influence of surface water	YES	2			
Total System Construction Score		0			
		IOC	VOC	SOC	Microbial
2. Potential Contaminant Source / Land Use		Score	Score	Score	Score
Predominant land use type (land use or cover)	BASALT FLOW, UNDEVELOPED, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
Significant contaminant sources *	NO				
Sources of class II or III contaminants or microbials	present within a 1-mile radius and upstream	4	0	0	0
Agricultural lands within 500 feet	NO				
		0	0	0	0
Three or more contaminant sources	NO	0	0	0	0
Sources of turbidity in the watershed	YES	1	1	1	1
Total Potential Contaminant Source / Land Use Score		9	1	1	1
3. Final Susceptibility Source Score		9	1	1	1
4. Final Source Ranking		Moderate	Low	Low	Low

* Special consideration due to significant contaminant: The source water has no special susceptibility

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund, is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.